

LISTING OF CLAIMSIn the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1.-20. (cancelled)

21. (previously presented) A particle analyzing system comprising
an area for accommodating particles;
an imaging sensor for capturing image data of the particles, the imaging sensor comprising receptors having a size;
an image transfer medium having a diffraction limited spot size in an object plane, the object plane positioned within the area for accommodating particles, the image transfer medium operative to unit map a projected receptor size in the object plane to about the diffraction limited spot size in the object plane, the image transfer medium comprising a first lens positioned toward the object plane and a second lens positioned toward the imaging sensor, the first lens sized to have a focal length smaller than the second lens to provide an apparent reduction of the receptors within the object plane; and
an analyzer coupled to the imaging sensor, the analyzer for characterizing the particles.

22. (previously presented) The particle analyzing system of claim 21, wherein the receptors comprise pixels having a pixel pitch from about 0.1 microns to about 20 microns.

23. (previously presented) The particle analyzing system of claim 21, wherein the area for accommodating particles comprises a chamber through which flows a gaseous medium comprising particles.

24. (previously presented) The particle analyzing system of claim 21, wherein the area for accommodating particles comprises a chamber through which flows a liquid medium comprising particles.

25. (previously presented) The particle analyzing system of claim 21, wherein the analyzer for characterizing the particles is operative to determine at least one of particle shape, particle size, particle color, and particle transparency.

26. (previously presented) The particle analyzing system of claim 21, wherein the analyzer for characterizing the particles comprises a processor and a data store, and the analyzer is operative to compare image data of the particles with data in the data store.

27. (previously presented) The particle analyzing system of claim 21, wherein image data is captured in a synchronous or asynchronous manner.

28. (previously presented) The particle analyzing system of claim 21, wherein the particle analyzing system is an air quality monitor.

29. (previously presented) The particle analyzing system of claim 21, wherein the particle analyzing system is a clean room monitor.

30. (previously presented) A particle sizing system comprising
a chamber for accommodating particles;
a sensor for capturing image data of the particles, the sensor comprising pixels having a size;
an image transfer medium having a diffraction limited spot size in an object plane, the object plane positioned within the chamber, the image transfer medium operative to unit map a projected pixel size in the object plane to about the

diffraction limited spot size in the object plane, the image transfer medium comprising a first lens positioned toward the object plane and a second lens positioned toward the imaging sensor, the first lens sized to have a focal length smaller than the second lens to provide an apparent reduction of the receptors within the object plane;

an analyzer coupled to the sensor, the analyzer for determining the size of the particles.

31. (previously presented) The particle sizing system of claim 30, wherein the analyzer comprises a computer.

32. (previously presented) The particle sizing system of claim 30 further comprising an illumination source providing at least about 75% of illumination energy having a wavelength range from about 100 nm to about 2,000 nm.

33. (previously presented) The particle sizing system of claim 30, wherein the particle sizing system is a clean room monitor or an air quality monitor.

34.-40. (canceled)

41. (new) A particle analyzing system comprising
an area for accommodating particles;
an imaging sensor for capturing image data of the particles, the imaging sensor comprising receptors having a size;
an image transfer medium having a diffraction limited spot size in an object plane, the object plane positioned within the area for accommodating particles, the image transfer medium operative to unit map a projected receptor size in the object plane to about the diffraction limited spot size in the object plane, the image transfer medium comprising a first lens positioned toward the object plane and a second lens positioned toward the imaging sensor, the first lens sized to have a focal length smaller

than the second lens to provide an apparent reduction of the receptors within the object plane;

an analyzer coupled to the imaging sensor, the analyzer for characterizing the particles; and

an illumination source providing at least about 75% of illumination energy having a wavelength range from about 100 nm to about 10,000 nm.

42. (new) The particle sizing system of claim 41, wherein the illumination source providing at least about 75% of illumination energy having a wavelength range from about 250 nm to about 500 nm.

43. (new) The particle sizing system of claim 41, wherein the illumination source providing at least about 75% of illumination energy having a wavelength range from about 400 nm to about 700 nm.

44. (new) The particle sizing system of claim 41, wherein the illumination source providing at least about 75% of illumination energy having a wavelength range from about 350 nm to about 1,000 nm.

45. (new) The particle sizing system of claim 41, wherein the receptors comprise pixels having a pixel pitch from about 0.1 microns to about 20 microns.

46. (new) The particle sizing system of claim 41, wherein the diffraction limited spot size in the object plane has a diameter from about 0.1 microns to about 20 microns.